In The *CLAIMS*

1. (Original) A strut for a vehicle suspension system comprising:

a primary fluid chamber;

a displacement member extending into said primary fluid chamber;

a damper element mounted to said displacement member and disposed in said primary fluid chamber for moving with said displacement member to dampen movement of said displacement member;

a secondary fluid chamber having at least two distally disposed sections in fluid communication with said primary fluid chamber on respective opposite sides of said damper element;

a compressible fluid which varies in viscosity in response to application of an electromagnetic field;

field means disposed proximate to said secondary fluid chamber for generating an electromagnetic field within said secondary fluid chamber to determine an effective viscosity of said compressible fluid exposed to said electromagnetic field in a portion of said secondary fluid chamber disposed between said distally disposed sections; and

wherein an effective pressure of said compressible fluid within said primary fluid chamber and an intensity of said electromagnetic field is determined by a controller external to said strut.

2. (Original) The strut for the vehicle suspension system of Claim 1, further comprising a cylinder and a sleeve, said sleeve fitting within said cylinder to define a primary fluid chamber and a secondary fluid chamber, said primary fluid chamber disposed within said sleeve and said secondary fluid chamber disposed in an annular space extending between an exterior of said sleeve and an interior of said cylinder; and

said sleeve having apertures for providing fluid communication between said primary fluid chamber and said secondary fluid chamber, with respective ones of said apertures disposed on opposite side of said damper element.

3. (Original) The strut for a vehicle suspension system of Claim 1, wherein said compressible fluid is an MR fluid which varies in viscosity in response to exposure to a magnetic field.

4. (Original) The strut for a vehicle suspension system of Claim 1, wherein said compressible fluid comprises particles which are responsive to electromagnetic fields.

5. (Original) The strut for a vehicle suspension system of Claim 4, wherein said particles comprise a hollow core member and an electromagnetic field responsive particle disposed within said hollow core member.

6. (Original) The strut for a vehicle suspension system of Claim 5, wherein said particle further comprises a polymer coating on an exterior of said hollow core member.

7. (Original) The strut for a vehicle suspension system of Claim 5, wherein said hollow core member is formed of carbon and said particles are formed to have a density and modulus of elasticity which are compatible with a compressible base fluid of said compressible fluid, such that said particles will remain in suspension within said compressible fluid and said particles have a substantially similar modulus of elasticity to that of the compressible base fluid.

8. (Original) A vehicle suspension system comprising:

a primary fluid chamber;

a displacement member extending into said primary fluid chamber;

a damper element mounted to said displacement member and disposed in said primary fluid chamber for moving with said displacement member to dampen movement of said displacement member;

a secondary fluid chamber having at least two distally disposed sections in fluid communication with said primary fluid chamber on respective opposite sides of said damper element;

a compressible fluid which varies in viscosity in response to application of an electromagnetic field;

field means disposed proximate to said secondary fluid chamber for generating an electromagnetic field within said secondary fluid chamber to determine an effective viscosity of said compressible fluid exposed to said electromagnetic field in a portion of said secondary fluid chamber disposed between said two distally disposed sections;

sensors for detecting data for defining vehicle motion; and

a controller which in response to the data detected by said sensors determines an effective pressure of said compressible fluid within said primary fluid chamber and determines an intensity of said electromagnetic field within said secondary chamber.

9. (Original) The vehicle suspension system of Claim 8, further comprising a sleeve fitting within said cylinder to define said primary fluid chamber and said secondary fluid chamber, said primary fluid chamber disposed within said sleeve and said secondary fluid chamber disposed in an annular space extending between an exterior of said sleeve and an interior of said cylinder chamber; and

said sleeve having apertures for providing fluid communication between said primary fluid chamber and said secondary fluid chamber, with respective ones of said apertures disposed on opposite side of said damper element.

10. (Original) The vehicle suspension system of Claim 8, wherein said compressible fluid comprises particles which are responsive to electromagnetic fields, said particles having a hollow core member and an electromagnetic field responsive particle disposed within said hollow core member, wherein said hollow core member is formed of carbon and said particles are formed to have a density and modulus of elasticity which is compatible with a base fluid of said compressible fluid.

11. (Original) The vehicle suspension system of Claim 10, wherein said field means is an electric coil which applies a magnetic field to said particles of said compressible fluid disposed within said secondary fluid chamber.

12. (Previously Amended) A suspension system for supporting a suspended body from a support member which is subject to vibratory motion, comprising:

a cylinder having an interior bore, said bore defining a cylinder chamber, and said cylinder having an aperture formed to extended into said cylinder;

a sleeve fitting within said cylinder to define a primary fluid chamber and a secondary fluid chamber, said primary fluid chamber disposed within said sleeve and said secondary fluid chamber disposed in an annular space extending between an exterior of said sleeve and an interior of said cylinder chamber;

a compressible fluid which varies in viscosity in response to application of an electromagnetic field, said compressible fluid disposed in said primary fluid chamber and said secondary fluid chamber;

a fluid displacement member moveably extending through said aperture and into said primary fluid chamber;

a seal extending between said fluid displacement member and said aperture into said cylinder, and sealingly engaging therebetween;

wherein movement of said fluid displacement member in a first direction through said aperture and into said cylinder chamber increases said fluid pressure in said chamber, such that said compressible fluid pressure exerts a resultant force which pushes against said fluid displacement member in a second direction;

a damper element mounted to said fluid displacement member and disposed in said primary fluid chamber for moving with said fluid displacement member to dampen movement of said displacement member;

said sleeve having apertures for providing fluid communication between said primary fluid chamber and said secondary fluid chamber, with respective ones of said apertures disposed on opposite side of said damper element;

field means disposed proximate to said secondary fluid chamber for generating an electromagnetic field within said secondary fluid chamber to determine an effective viscosity of said compressible fluid exposed to said electromagnetic field within said secondary fluid chamber; and

a control section for determining an effective pressure of said compressible fluid within said primary fluid chamber and for determining an intensity of said electromagnetic field within said secondary chamber; and

wherein said cylinder is secured to one of said suspended body and said support member, and said fluid displacement member is secured to the other of said support member and said suspended body.

13. (Previously Amended) The suspension system of Claim 12, wherein said field means comprises coil windings connected to said control section and disposed relative to said annular space for selectively passing an electric current through said coil windings and applying said electromagnetic field to a portion of said fluid which is disposed interiorly within said annular space to control a stiffness of said strut.

14. (Previously Amended) The suspension system of Claim 14, wherein said compressible fluid comprises particles which are responsive to electromagnetic fields, said particles having a hollow core member and an electromagnetic field responsive particle disposed within said hollow core member, wherein said hollow core member is formed of carbon and said particles are formed to have a density and modulas of elasticity which is compatible with a base fluid of said compressible fluid.

15. (Previously Amended) The suspension system according to Claim 14, wherein said damper element has a flow passage which extends through said piston and is sized for restricting flow of said compressible fluid through said piston.

16. (Original) A method for operating a strut of a suspension system for supporting a suspended body relative to a support member which is subject to vibratory motion, the method comprising the steps of:

providing a cylinder defining a cylinder chamber, the cylinder having an aperture formed to extends into the cylinder and through which a fluid displacement member moveably extends,

providing a compressible fluid disposed within the cylinder chamber and having a fluid pressure, the compressible fluid changing viscosity in response to being exposed to electromagnetic fields;

providing the fluid displacement member to extend through the aperture and into the cylinder chamber; wherein movement of the fluid displacement member in a first direction through the aperture and into the cylinder chamber increases the fluid pressure in the chamber, such that the fluid pressure exerts a resultant force which pushes against the fluid displacement member in a second direction;

providing a seal which sealingly engages between the fluid displacement member and the cylinder,

securing the cylinder and the fluid displacement member to different ones of the suspended body and the support member,

securing a sleeve within the cylinder chamber to define a primary chamber and a secondary chamber, the primary chamber being disposed interiorly of the sleeve and the secondary chamber being disposed in an annular space between the sleeve and the cylinder;

providing a damper element which is secured to the fluid displacement member and disposed interiorly within the cylinder chamber, such that the damper element is moveable with the fluid displacement member relative to the compressible fluid to restrict movement of the fluid displacement member relative to the compressible fluid;

providing a field means for applying an electromagnetic field to the compressible fluid disposed within the secondary chamber; and

applying electric energy to the field means to apply the electromagnetic field to the compressible fluid disposed within the secondary chamber, and thereby determine a dampening coefficient for the strut.

17. (Original) The method according to Claim 16, further comprising the steps of:

providing a fluid flow port into the cylinder chamber; and

passing compressible fluid through the fluid flow port to determine a spring constant for the compressible fluid in response to detecting motion of the suspended body relative to a reference datum.

18. (Original) The method according to Claim 17, wherein the step of applying the electric energy to the field means applies a magnetic field to the compressible fluid, which changes the viscosity of the compressible fluid in response to the magnetic field.

19. (Original) The method according to Claim 18, wherein the step of providing the compressible fluid comprises the step of providing the compressible fluid with particles which are responsive to magnetic fields, with the particles being of compatible density and modulus of elasticity with a base fluid of the compressible fluid for remaining suspended within the compressible fluid and providing the compressible fluid with a modulus of elasticity which is substantially similar to the modulus of elasticity of the base fluid.

20. (Original) The method according to Claim 19, further comprising providing a control system which selectively disposes the compressible fluid within the cylinder chamber to control pressures of the compressible fluid within the cylinder chamber of the strut of the suspension system in response to fluid pressure control signals, wherein the pressures of the compressible fluid within the cylinder chamber determine values for spring rate coefficients of the strut;

providing a sensor for detecting relative positions of the suspended body relative to the support member;

emitting the pressure control signals and controlling the pressures of the compressible fluid within the strut to determine the spring rate coefficients in response to sensed values from the sensor; and

emitting damping control signals to apply the electromagnetic field to the compressible fluid within the secondary chamber and determine the dampening coefficients in response to sensed values from the sensors.